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THE ECONOMIC CONSTRAINTS ON SOVIET MILITARY POWER

by

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and

Walter B. Slocombe

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THE ECONOMIC CONSTRAINTS ON SOVIET MILITARY POWER

by

G. Jonathan Greenwald and Walter B. Slocombe^{*}/

I

The Soviet Union is so different from the United States and potentially so dangerous. The established means of containing its expansion and the risk of war have been largely successful, but they are costly, require great patience and come obviously without guarantees. As a result, Americans are tempted to search for a fatal internal Soviet weakness that, once exposed and exploited, will assure us all must be well. Ideally, the poison should operate of its own accord and with the certainty of predestination. If American actions are required, they should be the sort that can be taken unilaterally and cheaply, with as little need as possible to condition US security and well-being on cooperation with a society regarded as implacably hostile and with no way for the Soviets to avoid fate by their own efforts.

Containment as conceived by George Kennan was a complex policy, but most Americans saw it as unilateralist: the US would construct a barrier

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behind which the Soviets would eventually mellow or collapse. Other popular theories of internal decay, which, again, often do injustice to their originators--that the Soviet Union is an antiquated Slavic empire condemned to destruction by demography, for example--require even less difficult American choices.

Central to most theories of exploitable internal weakness is the Soviet economy. The belief that the notoriously inefficient, blatantly inadequate, overly-centralized production system will collapse under the strain of competition with the West--or, in recognition of the potential gain, will reform voluntarily in a manner that will diminish any Soviet threat--is about as old as the Soviet Union itself. Joseph Davies, no better a judge of Stalin's economic policies than a critic of his purge trials, concluded that:

"To maintain its existence, this government has to apply capitalistic principles. Otherwise it will fail and be overthrown. That will not be permitted by the men presently in power, if they can avoid it. I expect to see this government, while professing devotion to Communism, move constantly to the right, in practice, just as it has for the past eight years. If it maintains itself, it may evolve into a type of Fabian socialism, with large industry in the hands of the state, with, however, the agricultural and smaller businesses and traders working under capitalistic, property, and profit principles."¹

Though Fabian socialism is no longer in vogue as the predicted end of the Soviet experiment, the economy has continued to fascinate Americans who would like to believe coexistence with Soviet power is not a permanent factor of our national life. The latest manifestation of this fascination is the question whether the correlation of a stronger US defense effort--and especially its high tech manifestation in SDI--with the advent of a leadership in Moscow that proclaims its determination to improve economic performance presents an opportunity to compel the USSR to accept a less favorable military balance. It probably is a commentary on human nature that often the very persons who profess greatest concern about Soviet power and resolution are at the same time most inclined to believe Bolshevism is now, at last, ripe for being out defense-budgeted into the long-predicted internal collapse.

Their reasoning goes:

A) The Soviet economy is doing poorly, not only in delivering prosperity to the population, but even in providing the base for future military power;

B) Without drastic reforms, the Soviets will be unable to compete in the high technology areas that will increasingly determine military power, not to speak of meeting other, broader social needs;

C) But because these reforms would both unacceptably weaken the Party's control and drain away resources needed for the Soviet military to maintain the current balance in the face of heightened US efforts, they can not be carried out;

D) If the West presses the competition, especially in the high tech area, the Soviets will face an impossible strategic-economic dilemma: if they do not reform the economy, they will be unable to meet the challenge; if they do, the very act of reform will prevent them from devoting to military power the resources also needed to meet that challenge;

E) Therefore, the US proceeds, as the President said on returning from Reykjavik, from "a position of strength;" the implication is that economic contradictions mean the Soviets will eventually have to accept military inferiority, whether or not it is formalized in agreements. A variation on this view, held frequently at the opposite end of the political spectrum, is that the Soviets are already so pressed--and so determined to free resources for reform of their economy--that they are prepared to reach genuinely radical arms control agreements.

That the Soviet Union has ferocious economic problems is undoubtedly correct. The specifics of the analysis, however, are at best assumptions. They may be true; indeed, they almost certainly are in

part. The point is, however, that there is remarkably little evidence to support them, or at least their full reach.

Absent such confirmation, prudence suggests policy be based on very nearly the opposite assumptions that have the virtues behind them of precedent, some facts, and a conservative calculation of risks and opportunities, namely that:

--If its new leadership chooses, the Soviet Union can, without starving its military, carry out sufficient reform to make a meaningful, though not revolutionary, degree of difference to its economy;

--Whatever the course of Soviet economic policy, the regime will continue to find the resources to compete seriously across the board in military matters, including at an adequate level of high tech;

-- Therefore, the US can not expect the Soviet Union's economic problems to force it to opt for cooperation rather than confrontation.

II

Much is wrong with the Soviet economy. The observation of every visitor--and the personal complaint of every non-official Soviet--is of a wretchedly inefficient, unproductive, unsatisfactory consumer economy. No less an authority than "Pravda" summed up the "negative phenomena"

which are producing their devastating effects: "violations of labor discipline, embezzlement and bribe taking, profiteering and sponging, drunkenness and hooliganism, displays of a private-property and money-grubbing psychology, toadyism and servility."²

The statistics confirm that, even on a larger scale, there are grave problems. GNP has grown on average about 2.2% annually since the middle 1970's, only half the rate for the previous decade. (The US average, from a higher base, was slightly more than 3% during the 1970s, rather less for most of this decade). More ominously, that modest Soviet achievement has been possible only through application of increasing increments of labor, capital and land. Even between 1966 and 1970, when the economy was growing each year at 5%, factor productivity showed a gain of barely 1%; since then, it has been negative. Labor and capital, particularly the former, are in short supply and can no longer be drawn down upon with the profligacy that marked the early years of industrialization and modernization. Obviously, the Soviets need to make their economy more efficient.³

Another sign of trouble is the virtual halt to improvement in consumer standards. After averaging approximately a 3% increase per year between 1956 and 1965 and closer to 4% per year for the next decade, the annual growth of per capita consumption has slumped to less than 1.5% since 1976. In 1985, it was about one-half of one per cent, with food consumption, a visible and psychologically vital index, down nearly 2%.

The argument that the ordinary person's lot, though still poor, is irreversibly improving has become increasingly thread-bare.

Gorbachev has already taken a few steps, mostly switches of personnel but also first tentative efforts to shake up bureaucratic structures. While much remains in the realm of rhetoric, the symbolism he has used and his style have been significant. The apparent willingness to consider unconventional cures has suggested itself in conversations with Western business leaders and in encouragement of a more candid domestic dialogue in a livelier media. He at least acknowledges there is a serious problem and uses fairly radical language to describe the corrective: to get the Soviet Union moving again, he says, there must be a structural reorganization of the economy.

This, most Western observers assert, means only that he is determined to make the system of planned, centralized state socialism more efficient by tinkering with its structure and encouraging its human elements to work better by whatever mixture of blandishments, inducements and discipline. If he sets his goals higher, he may even face serious political difficulty when the lack of significant results becomes obvious, they say, and he may face it all the sooner if he risks real change in the system. He may go the way of Khrushchev, who tried to do too much too quickly and was removed when he offended entrenched interests without delivering on his promises. More likely, in this skeptical view, he will become a less blatantly corrupt Brezhnev, who

experimented with reform before settling into a comfortable reign of tenured cronyism during which any progressive economic spirit ossified into Gorbachev's difficult inheritance.

There is much to support skepticism about Gorbachev's prospects. He himself is uncharacteristically candid for a Soviet leader about the bureaucratic hurdles, saying that "The old is not giving up without a fight. It is finding new forms of adapting itself to the dynamics of life in various scholastic stratagems."⁴ Moreover, nothing in his own statements suggests that this veteran apparatchik, who got where he is by (or at least despite) presiding over the "triumphs" of Soviet agriculture in the late Brezhnev years, has any desire to realize truly sweeping changes in the system that has been so good to him.

The figures in his published budgets and planning documents appear contradictory and the supporting details hard to reconcile with the long-range targets. GNP, for example, is estimated as increasing 3.5% annually between 1986 and 1990 and 5% each year for the subsequent decade, growth which the Soviet economy has not reached since the 1960's. Yet, the investment goal--an annual rise of between 3.5 and 4%--is only about what has been achieved in recent years. Productivity increases far beyond what the Soviet system has produced for decades and highly ambitious energy and raw materials targets are supposed to square the circle, but it is difficult to avoid the impression the Soviets have been stealing not just technology but also "supply side" accountants.

Gorbachev can not get from where he is to where he says he wants to go playing cards on the table, but there are only ambiguous indications he will experiment with such fundamental matters as the price system and market forces in the manner of China or even Hungary.

Before one predicts failure for him, however, it is necessary to look more closely at what an acceptable success might be. Five-Year Plans are almost never fulfilled. There is no reason to believe Gorbachev will be held closely to account for whether he hits or misses specific numbers, either in 1990 or 2000. What matters is whether he substantially meets the expectations of the country's power centers, the Party above all but also the military. The broad mass of Soviet citizens figures in this calculation to the extent popular attitudes relate to productivity of the labor force. But satisfying large segments of the population to gain popularity or legitimacy is not the prerequisite it is in Eastern Europe.

Gorbachev does have prospects for achieving some real improvements without radical changes. Simply breaking up cozy patterns of corruption will accomplish something--and strengthen, not weaken, central control at the same time. Similarly, the campaign to improve work-place discipline and reduce absenteeism, of which the anti-alcohol crusade is the most colorful element, has had some impact on productivity, according to observers, but none at all on power distribution. While the benefits will level off fairly soon, they need not be temporary.

The poor record of the consumer economy in the first half of the decade helps with the worker incentive problem. A little improvement can seem like a lot and provide inspiration for greater effort when expectations are as low as they are in the Soviet work force.

Yet Gorbachev clearly is prepared, however cautiously, to go somewhat farther. To the extent there is a model, it appears to be East Germany, whose relatively successful economy has shown it is possible to get results with a more efficiently managed centralism despite the largest military burdens in the Warsaw Pact outside the Soviet Union itself. While maintaining the principle of central control, he is trying to simplify the decision-making process by reducing the bureaucratic layers between Party planners and enterprise managers. Some of the latter are receiving more responsibility for daily decisions including control of investment and wage funds. He is also shaking up personnel. Five Central Committee Department Chiefs with economic portfolios have been removed as have at least 25 economic ministers and state committee chairmen. Many have been replaced by younger officials with good management credentials from the defense sector.

Foreign trade is the one area where there are clear signs of basic change. Politburo decisions in late summer including establishment of a super-coordinating body, the Foreign Economic Relations Commission, appear to herald a new era of relative decentralization. For the first

time, dozens of enterprises will be entitled to trade directly outside Soviet borders, with a profit and loss bottom-line used to evaluate their business judgement. Gorbachev has undertaken to modify the legal system to permit Western firms to engage in joint ventures in which they could hold 49% of equity, and he has hinted to US businessmen that further changes are being prepared. Even the Soviet leader may not know yet whether similar reforms will eventually be extended to the economy's domestic sector. Already, however, the measures seem to fall within a tradition extending from Peter the Great, who imported Western technical and financial ideas nearly three centuries ago, through Stalin, who used Western experts to facilitate the great industrial advance after the Bolshevik Revolution, to Brezhnev and Kosygin, who obtained an infusion of Western capital in the 1960s and 1970s. They promise at least short term payoffs in exposure to more effective business and management methods and alleviation of consumer pressures.

A law passed by the Supreme Soviet in November 1986 after extensive discussion in the labor, trade and criminal justice ministries and the Academy of Sciences authorizes limited private enterprise in the service sector both to give an outlet to more ambitious workers and to improve the quality of life open to the average citizen. Privately-run businesses--the farmer's plot, the officially sanctioned craftsmen and artisans--are not new to the Soviet system. Nor are pledges to protect and, within bounds, expand their role. The new law does not go as far as would some of the ideas for increasing the significance of non-

centrally directed activity that Soviet economists, notably those associated with the Novosibirsk School, have been debating for several years. Some discretion for further, case-by-case expansion has apparently been left to local officials, however, and, once again, in a situation of scarcity, even small measures can assume unusual importance.

The ability of the West to encourage Gorbachev to go as far as he wants in these areas of reform is limited; its ability to force him is even more circumscribed. Indeed, if a modest improvement of positive incentives is not sufficient to increase worker productivity, Gorbachev has another potential tool: foreign crisis. A patriotic people conditioned by centuries of history and 60 years of propaganda to expect the worst from the outside world can be relied upon to respond to an appeal for further sacrifice to counter a threat to the nation. A heightened sense of international crisis and challenge, whether honestly perceived by the leadership or generated by it for its own purposes, could stimulate even normally lethargic Soviet workers as it has done in the past.

What Gorbachev shows no sign of doing, and is most unlikely to do, is compromise the principle of central Party control. Indeed, his record in agriculture, where modest reforms could probably produce dramatic results but at some political cost, suggests that his own priority is in not

weakening Party power. Whatever his personal views, the system drives him in this direction. The Party's essential expectation is that the First Secretary will preserve its power domestically and gradually expand its power (or at least influence) internationally. This twin value structure has important implications for any American effort to spend the Soviet Union into military inferiority.

With little concern for internal opposition, the regime's guiding consideration, second only to Party control, is maintenance and, if possible, improvement of the "correlation of forces" beyond the borders of the Soviet Union, with military capacity, of course, the primary element. All Soviet experience indicates that in a conflict between this objective and economic efficiency, military power will prevail. One need not conjure up "hard line" marshals and admirals to find the political forces that make Gorbachev prepared to sacrifice economic reform if necessary to preserve the military power of the USSR.

III

It is the link between the economy and military power, however, which must draw the careful attention of both the Party and its military leaders. That the Soviets will do what they can to maintain strong armed forces does not tell us how the trade-offs and priorities will be determined in specific cases or even in a strategic manner, much less whether they can satisfy future requirements. The tension between

overall economic progress (as contrasted to growing consumer satisfaction) and military power should not be exaggerated. There are many indications that the Armed Services appreciate the importance of a strong economy, or, as Engels put it, that "nothing is more dependent on economic conditions than the army and navy. Armament, military structure and organization, tactics and strategy, depend primarily on the existing level of production and on communications."⁵ Marshal Ogarkov, relieved in 1984 as Chief of Staff apparently for political reasons but now in one of the most sensitive operational commands and still able to publish his views, for example, outspokenly asserts that the Soviet Union needs to improve its industrial base, particularly in computers and other advanced technologies, to compete with the West in the 1990's.

What is the prospect the economy can continue to produce what the military needs to maintain itself as the protector and most reliable champion of the state while the renewal process goes on? How much patience can the military afford to have if Gorbachev allocates more resources to the civilian economy?

To test the premise that substantial economic revival and modernization requires large cuts in defense expenditures or at least major drawdowns on resources earmarked for the military, we should be able to say what present burden the military represents for the economy, both in monetary terms and as a competitor for resources. Unfortunately we can only be confident about the imprecision of our knowledge. We can

say with much more certainty what Soviet capabilities are than what it costs to get them.

Few subjects have been studied more closely by Kremlinologists than the defense budget or debated as passionately. Certain fundamental conclusions are broadly agreed: the Soviets spend much more of GNP on defense than the US, and the share of GNP they devote to the military is at least not declining. Their penchant for secrecy continues to frustrate observers who seek more of the vital details, however.

Since the Soviets themselves are unhelpful, various methods have been devised such as extrapolating hidden costs from the published budget figures for non-defense items and estimating what the US would have to pay to purchase the equivalent military strength. With respect for the skill and dedication of the practitioners and recognition that intelligence services may occasionally acquire additional sources of useful information, it is apparent such methods leave substantial room for error. Yet crucial judgments about Soviet intentions, credibility, and capabilities tend to hinge on such estimates.

The process of producing the estimates is inevitably a matter of controversy and political sensitivity. It attracted much attention when, in 1976, the CIA suddenly doubled its figure for annual Soviet defense spending (from 25 to 50-60 billion Rubles and from 6-8% of GNP to 11-13%) without suggesting that the size of the forces those Rubles bought had

changed. Throughout much of the next decade, even the revised CIA figures were considerably below those of the DIA. In the last year, under pressure from Congress, the two agencies brought their estimates much closer together, though DIA believes Soviet procurement spending has substantially increased since 1982, CIA that it has remained essentially flat.

As welcome as the relative agreement is, one wonders whether the reanalysis and changes in methodology that produced it owe something to bureaucratic compromise as well as scientific improvement and whether the current estimates are likely to be any firmer than their predecessors. As one student of the process wrote in 1985, "It may yet result that the net effect of the Soviet military spending debate is to double projections in the 1970s and halve them in the 80s. While this is an overdramatization, in effect there has been an information gap between entry of data into the system and a revision of the community consensus. This suggests the proposition that, at any time, the estimate will be wrong. Again residual uncertainty operates."⁶

Uncertainty is worst where we can not even measure outputs precisely. Research and Development--R&D--is a vital determinant of the military strength of tomorrow and the day after. R&D spending tends to measure the chances that Soviet forces can close the technological gap with the West, or at least not let it grow wider, and the strain of the military effort on high tech resources. For years, the CIA considered its

estimates of what the Soviets spend on R&D too imprecise to release to Congress. Equipped with a new building block approach, it now says that "We have substantially greater confidence in our new estimates of Soviet spending for military RDT&E."⁷ The estimate for 1984 is 22 billion Rubles, a figure the Agency believes with 90% confidence is not more than 20% too low or 15% too high. Put another way, the CIA believes it is only 10% likely that the actual investment the Soviets made in Research and Development was outside the not inconsiderable range of 18-27 billion Rubles. (It also believes that over the past two decades, the cumulative costs of Soviet R&D exceeded equivalent US expenditures by more than 10%.)

It is not surprising, therefore, that there is a wide spectrum of views on the crucial point of how large a percentage of GNP military spending represents. For years, the CIA estimated this at 12-14%. Now the figure has been revised to 15-17%. The suggestion is that military spending is taking a progressively larger share of the country's resources, but at least a substantial element of the apparently dramatic change is accounted for by methodology, by a shift in the unit of account from 1970 to 1982 Rubles and assumptions about the degree to which inflation has taken a larger toll on the prices of military goods and services than civilian counterparts.

How great are these percentage variables? The 1985 Soviet GNP, as calculated by the CIA in 1982 Rubles, was approximately 768.3 billion

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Rubles. A single percent amounts to 7.68 billion Rubles. Put another way, the CIA estimates US defense expenditures equalled Soviet in 1985 for the first time in many years. Both countries spent in the neighborhood of \$240 billion. Of this amount, the US is dedicating approximately 1.5% to its Strategic Defense Initiative. The admitted possible variance in the CIA's Soviet defense budget estimate covers the cost of four equivalent programs.

IV

Of course we are not completely unable to draw conclusions about the defense/economy relationship. It is only that they must be subjected to skepticism in direct proportion to the degree of certainty with which they are advanced. With that large caveat, it is instructive to look at least for characteristic features that allow us to venture views about broad trends.

The first is that even huge cuts in defense spending would make fewer resources available to the Soviet economy as a whole than a quite modest improvement of the growth rate. Conversely, such a limited overall economic improvement would greatly ease budgetary pressure on military programs. For example, nuclear forces probably account for at most 25% of total Soviet defense spending. If the full defense budget is taken as 16% of GNP, nuclear forces might cost 4% of GNP or (very roughly) 30-31 billion Rubles. Should a combination of quite feasible, relatively

quick-fix improvements that would not in any meaningful way alter the fundamental economic system--say changes in agricultural prices and manager controls, a more productive foreign trade and less internal corruption--add 1% to GNP (considerably less than the targeted growth), national wealth would increase by some 7.5-8 billion Rubles or the equivalent of a quarter of the entire nuclear budget.

The second, obvious observation is that at whatever cost, the Soviets have bought so much defense that they now may have enough redundancy to permit significant internal resource shifts without affecting vital strength. No military man gladly gives up a tank, an airplane, or a troop unit, but if the economic reform begins to pinch, there will be some room for readjustment of priorities without sacrifice of vital requirements. The standing army was cut in the 1950's to facilitate and partially finance Khrushchev's build-up of the strategic rocket forces. Gorbachev may have similar luxuries. One thinks, for example, of the resources devoted to air defense and civil defense units that far exceed anything equivalent in Western forces but produce remarkably little benefit against US and Allied countermeasures. Their sacrifices could help with the effort to acquire advanced technology weapons.

Again, the Soviets maintained only about 17 divisions in the Far East prior to the deterioration of relations with China in the 1960's. Many of the new Army units created in the past two decades have been assigned to the Sino-Soviet border where more than 45 divisions are now

deployed.⁸ Reductions in this area, long one of the key Chinese demands for improvement of relations, would offer a means both to save substantial sums and achieve a foreign policy success that could alleviate one of the Soviet Union's most serious strategic concerns.

If such readjustments, which no doubt would be painful to parochial interests, are nevertheless not adequate to see the military through the adjustment phase, economic restraints could be expected to appear in one or more of the following areas: manpower, procurement, R&D. In each, however, there appear to be developments which give Gorbachev cause for some optimism.

IV

Manpower: As discussed above, the Soviets have a reasonable prospect of increasing the productivity of the labor force through a combination of tighter discipline (anti-alcohol and anti-corruption campaigns, etc.), moderately improved incentives, and, if necessary, an appeal to patriotism. On closer examination, many supposed manpower problems appear less than serious. In a society with great hidden unemployment, a gross shortage of workers is unlikely to be a constant liability, at least if the other indicated policies to improve the return on labor can be made to work.

Indeed, the problem of gross lack of people appears about to cure itself. The decline of 18 year-old males evident since the late 1970's will begin to turn in 1988-1989. Much has been made of the fact that the Central Asian, Islamic portion of the population is growing faster than the Slavic, but the major changes have already occurred. Projections indicate that youths in the 18 year-old cohort from the RSFSR (Russia proper) presently constitute about 44.8% of the Soviet total compared to 52.5% ten years ago. But not only are absolute numbers of 18 year-olds about to start to go up again USSR-wide, the proportion from the RSFSR is expected to be around 45% ten years from now, enough when supplemented by Slavs from other republics to maintain a non-Asian majority.⁹

To be sure, having enough people is not the same as having enough trained people in the right jobs. The Soviets are undoubtedly experiencing difficulties in finding adequate numbers of those with computer and related skills essential to develop and utilize new technologies. Thus far the military has been able to skim the cream from a talent pool described by the CIA as "marked by an emphasis on quantitative factors and affected by certain systemic inefficiencies."¹⁰ If economic reform means that some of the best people are sent into the civilian sector, there could be friction. But the very large educational system--it graduates 500,000 engineers and natural scientists yearly, more than double the US total--suggests considerable raw material is at hand for the quick fixes of improved curriculum and, possibly, more efficient utilization of available skills. At the least, it should be

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possible both to maintain large military forces and achieve improvements in the labor force.

V

Procurement: The accelerated productivity which is the prerequisite for modernization requires most importantly, however, transformation of the industrial base. The average age of Soviet stock and equipment is 20 years, considerably more than double that of the American and Japanese equivalents. Gorbachev proposes:

- to double retirement rates of capital stock in order to accelerate substitution of state-of-the-art machinery;
- to replace half the machinery capital stock by 1990;
- to increase capital investment in civilian machine building between 1986 and 1990 by 80%.

These ambitious goals might seem to carry potential for serious conflict with the military's traditional first call on capital resources. In fact, however, it appears that Armed Forces capital requirements are remarkably well taken care of.

The Intelligence Community agrees that Soviet military budget growth has been restrained in the past decade, at least in percentage terms. Following substantial completion in 1974 of the strategic arms buildup

which Khrushchev accelerated after the Cuban Missile Crisis and Brezhnev continued, overall defense spending and military procurement have increased at steady but low rates of about 1% and 2% respectively per year. This modest percentage growth, however, proceeds from an enormous base that allows the Soviet military to continue its expansion, at least for the immediate future, without major new capital infusions.

In addition to having purchased large numbers of weapons systems, the Soviets have already substantially achieved the military industrial base, including the modern machines necessary to make more machines, that they now hope to build in the civilian sector. As the CIA puts it:

"The near-term competition for factory floorspace and investment goods has been mitigated by the substantial expansion and upgrading of defense-industrial plants over the last decade. Comprehensive programs to modernize many weapons production facilities began in the early 1970s. Efforts to modernize defense industry accelerated in the late 1970s, and we believe a large portion of the best domestically produced machinery was delivered to defense industry during this period....

"As a result of this investment in defense industry, almost all of the production capacity required to support Soviet force modernization over the next six years or so is already in place. Our calculations suggest that virtually no additional investment in the plant and equipment is needed to manufacture the military hardware that we believe

will be in production in 1986-1988 and that most of the capacity required to turn out the military equipment projected to be in production in the early 1990s is already available. Moreover, weapons development and industrial construction indicate that investment in defense industries will continue at a high level, adding new capacity with greater capabilities. Thus, military production would not be constrained in the near term by a reallocation of new fixed investment in favor of civilian machinery and other priority sectors."¹¹

The CIA does foresee some competition at the margins for plant space and raw materials and, as noted, for the talents of computer specialists. It also predicts that, unless Gorbachev achieves early success in wrenching the economy onto a higher level of growth so that it becomes easier to provide both guns and butter more routinely, difficult decisions may be required late in the decade when assembly lines for the next generation of weapons must be established. Nevertheless, Gorbachev can concentrate for 3-6 years on retooling the economy without being required to contemplate serious military tradeoffs.

VI

R&D: Estimates for R&D expenditures must be more tentative than for procurement because often the results are less visible or become apparent only with considerable time-lag. By contrast, judgments about technological competence, the Soviets' ability to convert R&D into

top-grade weapons systems, can be made with greater definitiveness because at some point there is normally a product that can be compared, at least in general terms, with a Western counterpart. Combined, the two sets of conclusions allow a fairly confident judgement that the Soviets face serious long-term challenges. Less certain is that the challenges are more daunting than those that have been a regular feature of the competition with the West or that they will require the Soviets to choose between foregoing economic reform and accepting military inferiority.

The Soviets have lived with relative technological backwardness for a long time and still maintained an overall balance of usable military power. Experts who examined a range of technologies covering 20 years from the early 1950s into the 1970s concluded that "in most of the technologies... studied there is no evidence of a substantial diminution of the technological gap between the USSR and the West in the past 15-20 years, either at the prototype/commercial application stages or in the diffusion of advanced technologies."¹² The Defense Department found in a 1982 study of "the 20 most important basic technology areas" that the US led in 14, the Soviets in only two (conventional warheads and mobile power sources).¹³ According to a follow-on estimate it provided the Congress in 1986, the US was still ahead in 14 fields. Its advantage was narrowing in four and increasing only in one (computers and software). The Soviets had lost their lead in two fields, however, and six were now regarded as approximately equal.¹⁴

Despite a consistently weaker technological base, the Soviets turn out effective weapons systems in quantity and of increasing sophistication. Measured by the standard of ability to perform military missions, not whether they exemplify pure technological elegance, Soviet equipment does very well. Soviet tanks are not only numerous but also very good. Soviet airplanes are improving; ballistic missile quality, as the intermediate range SS-20, the new shorter-range SS-21 and SS-23, and the intercontinental-range mobile SS-25 suggest, is also improving. We have become used to seeing new concepts such as MIRV and elegant variations of old concepts such as cruise missiles in which the US once held large advantages folded into the Soviet inventory--often sooner than we expected.

Moreover, qualitatively, the military economy is at a vastly higher level in the Soviet Union than its civilian counterpart and clearly more open to innovative use of available technology. The Soviets appear to make procurement decisions with a close eye on potential combat missions. With ample gross resources and a tradition of mass and incremental, not revolutionary, improvement in systems, they are--evidently--good, probably better than the West, at putting what they do have to use. When Senator Proxmire questioned a high DIA official about the technological balance, he was told, not altogether reassuringly, that "We can probably answer that question in two ways. You can have technology in the field, that which is deployed. In that case, I don't think there's been any widening. I think the Soviets have closed, and in many cases have

surpassed us. When you are talking pure technology of weapons systems, I think we still have a sizeable advantage."¹⁵

It is common these days to hear that yet newer technologies on the horizon will change this situation radically to the West's advantage. The Strategic Defense Initiative, of course, is the focus of much speculation. Similar if less dramatic claims are made for weapons of conventional forces. Certainly the 5-15 year lead the US is considered to hold in computers and software and which is the focus of much optimistic speculation has military significance. Just as certainly 20 years from now the systems at the disposal of generals will in many cases be quite novel, requiring the rethinking of strategic and tactical doctrines. It is difficult to identify hard evidence, however, why the Strategic Defense Initiative or anything else will change this fundamental rhythm of competition in which Soviet ability to lavish resources on adequate equipment balances US (and Allied) ability to exploit technology to gain leverage for smaller total forces.

Furthermore, it is clear that the Soviets attach high importance to benefitting from the potential military applications of high tech. They are working the technology problem in the manner that has brought them considerable success in other fields. The Intelligence Community estimates the average annual increase in funds allocated to R&D in the past decade at 4-5%, four times that for procurement and double that of the full defense budget. Production of computers, advanced machine tools

and other automated equipment showed the best 1985 industrial results, and high tech has top priority in the current Five-Year Plan. The defense establishment will surely take its share of the fruits of this effort--as it takes everything else in the Soviet system--off the top.

It is an article of faith with some Western observers that the steps the Soviets are taking within their military sector to keep up with the high tech revolution can not succeed. The argument is that the quintessential characteristic of this revolution is the rapid flow of ideas; only a society organized on Western principles of openness and profit can, it is argued, provide means and incentive to acquire and apply new information in a timely and effective manner. The secrecy inherent in their system, on the other hand, means that Soviet scientists make or learn of discoveries too late to give them practical effect.

There is almost surely cultural bias in such a critique, however. The "black" program phenomenon, of which Stealth is perhaps the most publicized example, suggests that even in the US openness can be quite limited when it comes to applications of technology to military problems. Openness is important--a Soviet Deputy Defense Minister once complained that "we are stuck fast in secrecy like a fly in treacle"¹⁶--but it may be particularly so for the West where scientific research is highly decentralized.

Concentration of resources in the defense sector helps the Soviets compensate for the debilitating effects of their endemic secrecy in two ways. First, the potential military applicability of a discovery is less at risk of being ignored since it is likely to be made in the first place within the military/industrial complex. Second, it facilitates a correlation between very good basic research and exploitation of practical military applications that is probably a good deal higher than what the US enjoys. As beneficial as it would undoubtedly be for the civilian sector to enjoy better lines of communication to the military, the unbalance of the Soviet system probably means that the converse is less true. The loss in military potential can not be quantified by drawing a parallel to a Western economy.

Incentives also play a role in the Soviet system, of course. There are alternatives to the capitalist kinds which have helped fuel an effective military program for decades. Whatever deficiencies there are in the Soviet version (and these, it would seem, are more numerous on the less well-paid, less privileged civilian side), incentives are unlikely to be less effective merely because the technologies in question are computers or lasers rather than missiles or airplanes.

Likewise, it is important to avoid the fallacy of regarding technology as a fixed quantity, if only because there is a vast non-Soviet pool from which the USSR can draw if it chooses. The Kremlin retains important ancillary methods to make up short falls, including

espionage and purchase of dual-use technology. The latter is an especially useful safety valve for the Soviets in any domestic competition for technological resources: they can buy civilian while retaining the option to use what they obtain to produce, at least partly, military.

Without proof to the contrary, the assumption that the Soviets' military economy should be able to function about as well in its efforts to deal with the newest set of challenges as with the earlier ones seems safest. That is not quite as well as the West has done, but not badly. Its ability to do an adequate job from a lesser technological base, of course, is assisted by the fact that the Soviets can expect to continue to enjoy compensatory advantages. No technological revolution is likely to annul the benefits of mass and of a commitment to military spending that is relatively secure from competing priorities and entirely free from public opinion. The impact of the Soviets' relative technological lag on combat capability is uncertain. At some point, technological superiority becomes decisive, even against greater numbers--"We have got the machine gun and they have not." But if the technology advantage is more marginal, numbers can be critical. Many fairly good computers may not be able to perform at all some tasks that a few excellent ones can accomplish, for example, but a less sophisticated air defense might be as militarily effective as a technically far superior one that is matched against a much larger number of threats.

The interrelationship of civilian and military technology is a somewhat distinct issue from that of the absolute level of Soviet capability. Heretofore, there has been little interplay between the two in the USSR. The Soviets have long recognized the need, however, for more positive ties between the military and civilian sectors. As far back as 1971, Brezhnev told the Party Congress that "taking into account the high scientific-technical level of the defense industry, the transmission of its experience, inventions and discoveries to all spheres of our economy acquires the highest importance."¹⁷ A piecemeal effort was begun in the 1970's to duplicate some of the defense industry's organizational features and management techniques, notably in R&D, in the civilian sector. Gorbachev appears to be determined to pursue this more consequentially by transferring successful defense managers and setting up new coordinating bodies such as a Machine Building Bureau and a Committee for Computer Technology and Information Science.

It is by no means clear that such a reallocation--which is most unlikely to deprive it of a sufficient level of expertise to meet its unique technical requirements--would harm the military sector at all. Indeed, the reverse seems probable. When and if such resources and personnel are reallocated, they are likely to go to civilian enterprises that can devote them to products with dual-use applicability. There is a wide spectrum of such possible applications in micro-electronics and computers, of course, as Western industry demonstrates. It is much less likely that the Western tendency for profit-driven private industry to

put large resources into soft consumables will be copied. In the not very long-run, Soviet military potential could well be enhanced if the planning system somewhat evens out the present imbalance under which Soviet military industry is a haven of relative efficiency, productivity, quality and technological advancement in what is otherwise a sea of backwardness.

Moreover, the relatively efficient military/industrial complex can help by permitting the civilian sector to acquire and apply more of its technology without in any way diminishing military applications. The Soviet penchant for excessive security is involved here, of course, but it seems likely that Gorbachev's openness campaign, which already has redefined the concept of state secret in a number of political and social areas, could accommodate some change without putting truly sensitive technology at risk. If it does, the gains in dynamism for the civilian side would not diminish Soviet military/technical capabilities, and they could produce pay-backs over time.

None of this requires radical social change. It certainly would not change the military's favored position at the head of the resource queue nor call Party control into question. It thus would almost surely be less than fully effective, but, given the starting point, it would constitute significant improvement. It is far from certain, therefore, that even in the short or middle-term Gorbachev's better deal for the civilian economy means hard times for the Soviet military establishment.

VII

The above is not to suggest that the Soviets are without military or economic difficulties in coming years. Gorbachev and his generals are perceptive when they say Soviet military power can be assured only if its economic foundation is improved, and they are no doubt sincere in their determination to foster some positive change. In its present state the Soviet economy clearly can not provide a living standard (or even a prospect of growth) adequate to ensure efficient work from its citizens. Economic reform is needed, and, whether or not military costs are in any very direct sense responsible for the key problems of the Soviet economy, some redistribution of resources between military and civilian elements would make reform more effective.

Likewise, it is clear that the leadership is seriously concerned by the prospect of an unrestricted competition with the West for military supremacy. The Soviets have achieved a comfortable plateau. They are confident of present ability to deploy sufficient men and weapons to protect vital interests and gain political benefits. Despite their success in attaining levels of technology that, coupled with the sheer size of their forces, produce a military balance, they have great respect for Western, particularly American, technical capabilities. They no doubt genuinely wish to avoid a competition focused on unknown terrain where those capabilities might produce as yet unforeseeable results and

where they are at a comparative disadvantage. It is probably less the Strategic Defense Initiative itself which concerns them, for example--they have been pursuing ballistic missile defense in their own way for years--than the possibility it might produce spinoffs in other military fields which would require of them enormous efforts.

It would be highly imprudent, however, to consider the Soviet Union helpless before economic forces beyond its power to affect. Western publics want periodically to believe that the Soviets can be wished away, but governments risk a serious mistake if they lose sight of the fact that Gorbachev can do much with his economy quickly by removing its most egregious bottlenecks. He has a first class military establishment that has not been pushed for years to produce at full throttle. The relative slowdown in defense spending of the past decade, the CIA points out, "is as much a matter of decision as a matter of a lot of extra restraints, as was first thought. In other words, they maintained their procurement at levels they had more or less planned."¹⁸

The Soviet Union will not collapse of its own weight. If it believes itself pushed into a corner, it is virtually certain to draw on its significant resources to protect hard-earned positions rather than acknowledge inferiority. The economy is a Soviet liability and high tech a Western plus, but neither is a good bet to resolve the dangers of a world in which the superpowers are condemned to live together--if they are fortunate.

The Kremlin's problems give it incentive for caution, careful calculation, compromise, not cause to panic. Our opportunity is to encourage constructive cooperation that is in the mutual interest, not to pursue the chimera of decisive unilateral advantage.

1. Joseph E. Davies, Mission to Moscow (New York, 1941), 415-416.
2. Quoted in Timothy J. Colton, The Dilemma of Reform in the Soviet Union (Council on Foreign Relations, 1986, rev. ed.), 33.
3. Unless otherwise indicated, the CIA and DIA testimony contained in "Allocation of Resources in the Soviet Union and China--1985," Hearing before the Subcommittee of the Joint Economic Committee, March 19, 1986, has been the primary source for statistical and related information in this article.
4. "Washington Post," October 10, 1986, A-34.
5. The observation is from Engels' "Anti-Duerhing," quoted in David Holloway, The Soviet Union and the Arms Race (New Haven, 1984), 131.
6. John Prados, The Soviet Estimate (Princeton, 1986), 314-315.
7. "Allocation of Resources in the Soviet Union and China--1985," op.cit., 104.
8. W. Seth Carus, "The Evolution of Soviet Military Power Since 1965," in Edward N. Luttwak's The Grand Strategy of the Soviet Union (New York, 1983), 191.
9. See the statistical material, drawing on work by the Foreign Demographic Analysis Division of the US Bureau of the Census and Murray Feshbach, collected in John P. Hardt's appendix "Soviet Economic Constraints to Year 2000," Occasional Paper of the Atlantic Council and the International Economic Studies Institute: Western and Eastern Economic Constraints on Defense (Washington, 1986), 28-29.
10. "Allocation of Resources in the Soviet Union and China--1985," op.cit., 120.
11. *ibid.*, 51-52.

12. Amann, Cooper and Davies (eds.), The Technological Level of Soviet Industry (New Haven, 1977), 66, quoted in Holloway, op.cit., 135.
13. Holloway, op.cit., 135.
14. "Allocation of Resources in the Soviet Union and China--1985," op.cit., 115-116.
15. ibid. (testimony of Admiral Robert Schmitt, Deputy Director, Defense Intelligence Agency), 117.
16. Quoted in Holloway, op.cit., 146.
17. Quoted in ibid., 171.
18. "Allocation of Resources in the Soviet Union and China--1985," op.cit., 110.